

What is claimed is:

1. A lens antenna comprising:

a radio wave lens, the radio wave lens having refractive characteristics of a radio wave approximate to those of a Luneberg lens and formed of a dielectric material which satisfies the condition, $0 < a \leq r$, where a denotes a distance from a surface of the lens to a focal point of the lens and r denotes a radius of the lens; and

a primary feed having a 10 dB beam width θ , where θ denotes the 10 dB beam width of the primary feed and A determined by the formula of $A = \theta/2 \times (1 + 2a/r)$ is at least 40 and up to 80.

2. The lens antenna of claim 1, the 10 dB beam width θ of the primary feed is set to have A of at least 50 to 70.

3. The lens antenna of claim 1 or 2, wherein the radio wave lens includes a hemispherical lens and a reflective plate where a part of a reflective surface is protruded outward from the lens toward an incoming direction of the radio wave, and the lens antenna further comprising a supporting unit for supporting the primary feed at a fixed position to perform reception and transmission from or to geostationary satellites.